Lesson One

Introduction

Big Question(s):

Where are the states of matter found in my world?

What do they look like?

How do they act?

Content Statement-

**P.PM.E.2 States of Matter- Matter exists in several different states: solids, liquids, and gases. Each state of matter has unique physical properties. Gases are easily compressed,**

**but liquids and solids do not compress easily. Solids have their own particular shapes, but liquids and gases take the shape of the container.**

Content Expectation-

**Science**

**P.PM.04.23** Compare and contrast the states (solids, liquids, gases) of matter.

**Technology**

Advocate and practice safe, legal, and responsible use of information and technology

Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity

Understand and use technology systems

Select and use applications effectively and productively

Collect and analyze data to identify solutions and/or make informed decisions

Create original works as a means of personal or group expression

Use models and simulations to explore complex systems and issues

Scheduled Time

1-2 days

Objectives/Goals- (Students will be able to…)

Science

* Identify 5 different solids within the school/classroom.
* Identify 5 different liquids within the school/classroom.
* Identify 3 gases.
* Classify everyday objects/materials into solid, liquid, and gas groups.
* Explain in their own words a basic comparison and definition of the 3 states, (this early comparison will be used in later lessons.)
* Begin asking questions about matter and/or different materials.
* Begin making connections to content and self.
* Begin generating descriptor words about the different states (used in future assessment).

**Engage**

Science GLECs covered

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Students will go to the website <http://www.chem4kids.com/files/matter_intro.html> in the computer lab as a class. While at this website the students will read the following sections: overview, solids, liquids, and gases. All of these sections can be found at the right side of the page. After the students read each section they will then take the quiz at the end. When students get the answer correct there will be an explanation of why it is correct. If the students get them wrong an explanation will tell them why it is wrong and what the correct answer is. We will as a class read and do the overview together and take the quiz. This will be the example the students will need to see how this website works. I will explain to the students that they should be looking for the important aspects of matter and the three states of matter we will be studying for the next couple of weeks.

This activity will take place at the classroom. Teacher has several objects on display (example: stick, glass of juice, and a balloon filled with helium). Students write in their journal answering teacher posed question(s); “What can you tell me about these three objects?” “How are they similar?” How are they different?” “Can and how could we classify these objects?”… After allowing students about 5 minutes to write and think, allow students to share ideas…writing student ideas on the board.

**Explore**

Science GLECs covered

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Teacher sets up four centers:

Center one, States of matter trade books. Students will be engaged in reading through their choice of Matter trade books, monitoring their own comprehension when reading and recognizing frequently encountered words and vocabulary. Teacher will have posted questions at center to assist students in directing their reading in having the ability to answer the given questions, reviewing encountered words and key vocabulary. Teacher should also be asking probing questions as he/she travels from center to center, listening and observing the students.

Center two, picture cards for classifying materials found in everyday life. Students should be making connections from content to self, using prior knowledge, using critical thinking and listening skills as they work with group members to classify materials. Students should also be speaking and responding effectively so that others understand what they are explaining or expressing.

Center three, making a states of matter chart. Students are using prior knowledge from multiple types of text to illustrate and communicate a basic understanding of science concept.

Center four, states of matter song with lyrics and activity. Students are using prior knowledge from multiple types of text to illustrate and communicate a basic understanding of science concept. Students are recognizing words from song lyric print; they will be using lyric text to determine the meaning of words and concepts and will be self monitoring. Students should also connect personal experience and knowledge to text, listening and responding by illustrating to show understanding and connections, and sharing orally to demonstrate understanding of content

Small groups rotate through each center, having 5-8 minutes at each center. Teacher is observing and listening to student discussion and is asking probing questions for further discussion and critical thinking (ex. Why did you think…? Why would you do it this way? Are there other ways to do…? What are you finding out about…?)

**Explain**

Science GLECs covered

**P.PM.04.23** Compare and contrast the states (solids, liquids, gases) of matter.

After all groups have rotated through each center, bring the students back together for sharing, discussion and explanations. Teacher reads aloud, What Is the World Made Of? All about Solids, Liquids, and Gases. Teacher guides a basic discussion comparing each state of matter and a discussion of student observations/experiences at centers. After story, students return back to their science journal for vocabulary, story highlights and reflection, and writing connections to Explore activity.

Students are displaying proper listening skills (eye contact, attention, interaction with reader/text) during read aloud. Students may be responding or orally expressing prior knowledge, personal experiences, connecting to Engage and/or Explore activities, and self monitoring while listening to or after the text.

**Extend**

Review Engage activity and ask for students to share any new ideas they may have after completing the Explore and receiving new information. Students receive three index cards to label with Solid, Liquid, and Gas. On one side of each card, students create a definition for each state or restate the given definition; on the other side students list descriptors for each state and list any questions they may have about each state for future investigations.

**Evaluate**

Science GLECs covered

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Formative Assessment Example-

1. Collect student index cards and review student answer/ thoughts.

Students will be illustrating, retelling, and asking questions based on multiple textual experiences. They should be writing neatly and legibly, beginning to generate descriptive words for each state, and correctly spelling encountered words.

1. Students will complete Science Startup, Item 7/ES/matter & energy.

Students will be responding and summarizing ideas learned from lesson and multiple texts used to deliver science content. They should be writing neatly and legibly in their own voice and style, with correctly structured sentences and the use of proper grammar. Students will be proof reading their writing assignment, using peers for editing and/or other resources prior to teacher evaluation.

1. Observations from center activities.

Observe students during investigations, ask questions to probe student understanding of states of matter while observing cooperative groups.

1. Class discussions, questions, comments, and/or student answers.

Students will be speaking in clear and effective voices to communicate thoughts, ideas, prior knowledge/experiences, and/or summarizing science content.

Summative Assessment Example-

1. Students can begin collecting samples for the development of a Bag-n-Tag board.

Students will begin developing ideas for a display board, called the “Bag-n-Tag” board. They will be collecting, illustrating, labeling, and displaying examples of each state of matter, from their home. After completing each lesson, students will be able to continue to add to their own board with greater knowledge, vocabulary, descriptor words, and connection from content to self/home.

1. Develop Windowpane to express what students have learned.

Students will be illustrating, retelling, and asking questions based on multiple textual experiences. They should be writing neatly and legibly, beginning to generate descriptive words for each state, and correctly spelling encountered words.

1. Concept mapping the states of matter. This will happen back at the computer lab.

Students will be illustrating key ideas, vocabulary, and content; making connections with science content, multiple informational sources, and personal experiences. Student work should be neat, legible, and clear for assessment. They will use the Inspiration program or Excel to make a concept map. Advocate and practice safe, legal, and responsible use of information and technology

Technology for concept map:

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